Pollution Prevention Assessment

Pollution Prevention Today…

for Tomorrow.

Introduction and Disclaimer

This document has been created to assist industry of South Dakota in becoming more conscious of pollution prevention. It is based upon the document created in Montana (Montana Voluntary Environmental Audit and Pollution Prevention Guide) by the Montana State University Extension Service Montana Pollution Prevention Program in cooperation with the Montana Department of Environmental Quality Enforcement Division. We are indebted to them for the excellent document they put together.

The Guide to Setting up a Pollution Prevention Audit Program was originally done by the University of Wisconsin in 1993.

The responsibility for protection of the environment is the responsibility of everyone and every industry in the state. It is hoped that this document will help ease the burden of understanding how to assess pollution sources. This is not a legal document but rather a document to provide guidance for self-study in pollution prevention assessment.

This guide is a public domain document.

This publication was developed during the completion of a project funded by the South Dakota Department of Environment and Natural Resources.

The World Wide Web contains a great deal of information on pollution prevention. The following are sites found useful during the completion of this project:

http://www.nd.edu/Departments/EN/CEGEOS/faculty/ketchum/p2.html
http://shwec.uwsp.edu/resource.htm
http://www.ornl.gov/ornlp2/p2define.htm
http://www.estd.wvu.edu/nsfc/
http://www.estd.wvu.edu/nsfc/
http://es.epa.gov/index.html
http://es.epa.gov/program/p2dept/defense/army/armyp2.html
http://www.mapcruzin.com/scruztri/docs/gao9493.htm#top
http://www.mapcruzin.com/scruztri/docs/gao9493.htm#top
http://www.p2.org/p2experts/noprofit.html
http://web.epa.ohio.gov/opp/state.html
http://web.epa.ohio.gov/opp/ppafs.txt
http://www.montana.edu/wwwated/p2tips.htm

Pollution Prevention Assessment: Energy Conservation

1

INTRODUCTION

This guide will focus on how you could reduce pollution and save money. This part will discuss ways you can reduce the amount of energy used, resulting in:

- Improved productivity
- Reduced energy bills
- Increased profits

Keep in mind, using energy efficiently *does not mean* sacrificing comfort or productivity.

TERMS ASSOCIATED WITH ENERGY CONSERVATION

Energy - The ability to do work. Electricity is a form of energy that is transferred by moving electrons.

Energy Conservation - The careful management of energy used to prevent exploitation or waste.

Energy-Efficient - The productive use of energy without waste.

Lumen - The quantitative measure of a lamp's brightness. A 75 watt incandescent bulb has 1,200 lumens, whereas an 18 watt compact fluorescent bulb has 1,100 lumens.

Power - The rate at which energy is, or could be, transferred. Power is typically metered in kilowatts (1,000 watts).

Watt - A measure of how much electric energy is flowing, or can flow, through a particular electrical device or circuit in one hour.

CHECKLIST INSTRUCTIONS

This checklist was designed to offer small business owners and managers insight into ways they can save money, conserve energy, and prevent pollution. For each applicable question, circle the appropriate answer (*yes*, *no*, or *not applicable)* for your particular situation. Use the blank spaces to write notes and comments.

1. **Do you regularly check windows and doors for leaks or broken panes?** **Yes No**

If no - Whatever method you use to heat or cool your business, you can greatly reduce the load on the heating and cooling equipment by installing weather stripping and draft-proofing windows and doors.

2. **Is your facility properly insulated for the climate in your geographic area?** **Yes No**

If you are not sure how to respond to this question, contact your local power company.

3. **Are employees encouraged to turn off lights and equipment when not in use?** **Yes No**

If no - The simplest and cheapest way to conserve energy is to train employees to turn off lights and equipment when not in use and to open window blinds to utilize natural lighting.

4. **If constructing a new building for your business, will it be designed to use natural lighting, and will energy-efficient lighting and equipment be installed?** **Yes No**

If no - Using natural lighting and energy-efficient equipment and lighting can dramatically lower your energy bill as well as promote a better work environment.

5. **Are energy-efficient computers, printers, and photocopiers used in your business?** **Yes No**

If no - When purchasing new equipment, select models that have an automatic power-down function to save energy when not in use.

6. **Have the water heater and related pipes in your building been insulated?** **Yes No**

If no - Insulating water heaters and pipes can reduce heat loss and conserve energy.

7. **Have energy-efficient heating and cooling systems been installed in your building?** **Yes No**

If no - Using energy-efficient systems can be one of the most effective ways to reduce energy bills and the pollution created by energy production.

8. Do you close doors or shut vents in unoccupied rooms to conserve energy? **Yes No**

If no - Why heat or cool a room that is not occupied? Close vents or doors wherever possible to reduce the energy load on your cooling or heating system. Be sure to keep windows closed if using cooling or heating systems (be sure to allow for proper ventilation).

9. Are your business vehicles tuned up regularly? **Yes No**

If no - Regular tune-ups can extend the life of your vehicles and improve their performance (better gas mileage for example).

SOURCES OF ASSISTANCE

☎ **EPA - Denver Office**
One Denver Place
999 18th Street
Denver, CO 80202-2466
(303) 293-1616

☎ **EPA's Energy Star Computers Program**
Greens Lights 6202J
401 M Street SW
Washington, D.C. 20460
(202) 775-6650

☎ **EPA's Green Lights Program**
Greens Lights 6202J
401 M Street SW
Washington, D.C. 20460
(202) 775-6650

See Green Lights Brochure

☎ **SD Department of Environment and Natural Resources**
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3474
(605) 773-3151

☎ **SD Power Company - Local Offices**
Check your local telephone directory

Your Additional Questions:

Energy Conservation Checklist

(Circle Appropriate Answer)

NOTES	QUESTION

Housekeeping Recommendations 2

INTRODUCTION

Housekeeping refers to the general way you operate your business. It includes how:

- raw materials and equipment are purchased
- inventory is tracked and used
- materials and wastes are stored
- often you inspect storage areas for leaks or spills
- materials are used within your business
- leftover and waste materials are managed

Part of good housekeeping includes taking steps to ensure a safe work environment for you and your employees. Specific state and federal regulations designed to make a safer working environment include:

- ***Chemical Hazard Communication Standards*** - Enforced by the United States Occupational Safety and Health Administration (OSHA). Focuses on educating personnel on how to protect themselves from work hazards. For more information, contact DENR at 773-3296
- ***Emergency Planning and Community Right-to-Know Act*** - Enforced by the United States Environmental Protection Agency (EPA). Establishes requirements for industry and government agencies regarding emergency planning and "community right-to-know" reporting on hazardous chemicals. For more information, contact DENR at 773-3296.
- ***Hazardous Waste Operations (DENR at 773-3153) and Emergency Response Standards (773-7296)*** Protects employees who work with hazardous waste. For more information, contact the OSHA - Denver Area Office at (303) 844-1600.

This guide will not go into detail on the particular requirements for the acts and standards mentioned above. To obtain a checklist that focuses on safety issues, contact the OSHA - Denver Area Office at (303) 844-1600.

CHECKLIST INSTRUCTIONS

This checklist was designed to offer small business owners and managers insight into ways to save money, practice good housekeeping, and prevent pollution. For each applicable question, circle the appropriate answer (*yes*, *no*, or *not applicable)* for your particular situation. Use the blank spaces to write notes and comments.

Housekeeping Checklist

(Circle Appropriate Answer)

NOTES	QUESTION	
	1. Do you buy only as much material as you need to get a job done?	**Yes No**
	If no - By purchasing only as much as you need, you can reduce spoilage of expired materials and save storage space.	
	2. Do you buy materials in bulk form?	**Yes No**
	If no - Bulk materials are generally cheaper than individual containers and produce less packaging waste. Buy in bulk as long as you plan to use the materials before they expire. Avoid bulk purchases if you only use a small amount of a material over a long time period.	
	3. Do you purchase less hazardous materials?	**Yes No**
	If no - Substituting less hazardous materials in your business can reduce the amount of hazardous waste generated, reduce disposal costs, and minimize employee chemical exposure. Review product labels and MSDSs to help in your selection process. Also, contact your supplier for assistance in identifying less toxic or hazardous alternatives.	
	4. Are you purchasing products made with recycled materials?	**Yes No**
	If no - Products made from recycled materials, such as plastic lumber benches made from recycled plastic containers, save on virgin materials and energy.	
	5. Do you receive/ship goods in permanent, reusable containers?	**Yes No**
	If no - Reusable containers can reduce waste disposal costs, and save landfill space and valuable natural resources.	
	6. Do you purchase reusable aprons, towels, cups, etc.?	**Yes No**
	If no - Reusable materials last longer and save money -- no need to buy new products and pay to dispose of the used ones. Industrial laundries can remove contaminants from cloth rags for reuse.	
	7. Do you purchase materials that are recyclable?	**Yes No**
	If no - Recycling such things as aluminum and steel cans, glass, and paper can lower disposal costs, save raw materials and energy and often generates revenue from the sale of recyclables.	
	8. Do you purchase water-conserving equipment?	**Yes No**
	If no - Water-conserving equipment such as low-flow toilets can reduce monthly water bills, conserve local water supplies, and possibly conserve energy.	
	9. Do you buy energy-efficient equipment?	**Yes No**
	If no - Energy-efficient equipment such as compact fluorescent lamps can reduce your energy and disposal bills. Fluorescent lights last longer, so	

NOTES	QUESTION		
	you have fewer lamps to purchase and dispose of. Search for suppliers of lead and mercury free lamps to avoid disposal problems		
	10. Do you keep good track of your inventory?	**Yes**	**No**
	If no - Keeping track of what is in your storage area can prevent unnecessary duplication. Monitoring expiration dates reduces the spoilage of expired materials and saves money through reduced waste disposal fees.		
	11. Do you use materials on a first in/first out basis?	**Yes**	**No**
	If no - By using materials that came into your business first, you can reduce the risk of having your supplies expire or become obsolete. Purchase only what will be used in a reasonable time period.		
	12. Do you accept free samples?	**Yes**	**No**
	If yes - Be wary -- they may turn out to be hazardous. You may be stuck with the responsibility of proper disposal.		
	13. Do you test out-of-date materials before disposing of them?	**Yes**	**No**
	If no - Expiration dates are estimates. Often the product is good long after the labeled date. Find out if expired or obsolete materials can be returned to the supplier.		
	14. Do you follow manufacturers' instructions when using materials?	**Yes**	**No**
	If no - To prevent waste and accidents, read and follow product instructions carefully. Use caution when mixing chemicals. Make sure they are compatible.		
	15. Have all employees been trained to use hazardous materials properly?	**Yes**	**No**
	If no - Training in the proper use of hazardous materials can help prevent accidents, reduce waste, lower workers' compensation claims, and reduce your liability.		
	16. Do you check containers for leaks or spills?	**Yes**	**No**
	If no - Check materials and waste collection containers regularly. C and clean up leaks and spills as soon as possible to reduce employee exposure to chemicals. This practice also prevents the needless waste of materials.		
	17. Do you keep lids closed?	**Yes**	**No**
	If no - Keeping lids closed prevents the loss of product due to evaporation or spills and reduces employee exposure to chemicals.		

Housekeeping Checklist
(Circle Appropriate Answer)

NOTES	QUESTION	
	18. Do you use materials in aerosol containers?	**Yes No**
	If yes - Avoid purchasing materials in aerosol containers. They can pose a health hazard. Both the can itself and the material left in the can are waste. Aerosol containers may contain a potentially hazardous propellant. Check with your supplier for rechargeable compressed air or pump dispensers that can be refilled and reused.	
	19. If you use refillable containers to dispense bulk materials, are they labeled?	**Yes No**
	If no - Be sure all containers in your facility are clearly and accurately labeled to prevent misuse of a material.	
	20. Are all your containers labeled?	**Yes No**
	If no - Labeling all containers, including waste containers, can prevent injuries and costly mistakes if the wrong chemicals are used or mixed together.	
	21. Do you routinely perform maintenance on all equipment?	**Yes No**
	If no - A good maintenance program will prolong the life of your equipment, make the equipment run more efficiently, and create a safer environment.	
	22. Do you have leftover, usable materials you no longer want?	**Yes No**
	If yes - If you have unwanted but usable materials, find another business that could use them or determine if the manufacturer/supplier will accept them as a return or has a disposal option available.	
	23. Are different waste types stored separately?	**Yes No**
	If no - Mixing a hazardous waste with non-hazardous wastes makes the whole container hazardous. Check the products' Material Safety Data Sheets to ensure incompatible materials and wastes are not mixed or stored together.	

POTENTIALLY APPLICABLE RULES & REGULATIONS

- SDCL 34-29B - Uniform Fire Code (state)
- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response Standard (federal)
- 29 CFR Part 1910.1200 - Chemical Hazard Communication Standard (federal)
- Emergency Planning and Community Right-to-Know Act of 1986 (federal)
- 40 CFR Part 355 Section 301-303 - Emergency planning
- 40 CFR Part 355 Section 304 - Emergency release notification
- 40 CFR Part 355 Section 311-312 - Community right-to-know reporting requirements
- 40 CFR Part 355 Section 313 - Toxic chemical release reporting emissions inventory
- 40 CFR Parts 260-279 – Hazardous Waste Regulations
- 40 CFR Parts 302, 355 and 372 - Compliance information

Housekeeping Checklist

(Circle Appropriate Answer)

NOTES	QUESTION

SOURCES OF ASSISTANCE

- **Emergency Planning and Community Right-to-Know Information Hotline**
  (800) 535-0202
- **EPA – Denver Office**
  One Denver Place
  999 18th Street
  Denver, CO 80202-2466
- **SD Department of Environment and Natural Resources**
  Joe Foss Building
  523 East Capitol
  Pierre, SD 57501-3474
  (605) 773-3151
  (605) 773-3296
  1-800-433-2288
- **SD State Fire Marshal**
  118 West Capitol Ave
  Pierre, SD 57501
  (605)-773-3562
- **SD Department of Labor and Industry**
  Kneip Building
  700 Governors Drive
  Pierre, SD 57501-2291
  (605)-773-3681
- **OSHA – Denver Area Office**
  1999 Broadway Suite 1690
  Denver, CO 80202-5716
  (303)-844-1600

Your Additional Questions:

Material Safety Data Sheets 3

Does your business generate hazardous wastes? Did you know *you* are responsible for determining if the wastes you produce are hazardous and, if so, ensuring that they are handled properly? As environmental regulations continue to expand in scope and influence, it is increasingly important for businesses to be pro-active in managing the materials they use and the wastes they generate. Three important elements of a pro-active business are:

- **Know the regulations** - Stay abreast of the latest state and federal developments.
- **Know the materials you use** - A Material Safety Data Sheet (MSDS) is one tool for learning about the products you use and the wastes you generate.
- **Minimize or prevent wastes** - Always be searching for ways you can reduce the amount of hazardous chemicals used and be looking for non-hazardous alternatives.

The following section is designed to help you understand a MSDS. But it is important to realize that the MSDS is not always a complete source of information about product disposal practices. To find out more about the chemicals you use and what to do with them when they become a waste, contact the DENR at 773-3153

INTRODUCING THE MSDS

A MSDS is a document that provides information about the product purchased. All hazardous chemical manufacturers and distributors are required by the U.S. Occupational Safety and Health Association (OSHA) to provide a MSDS for each product produced. The quality of this information may vary significantly depending upon the thoroughness of the manufacturer, but it is up to you to assure you have MSDSs on file for every product you use at the workplace.

If an MSDS was not provided with the product, obtain a copy by writing to the manufacturer or the distributor. Employers who use, store, or manufacture hazardous materials are required by law to make the MSDS available to all employees who could be exposed to the material. Small businesses have been assessed fines by OSHA for failure to have complete MSDS records available to employees.

General Rules for Identifying Product Hazards

- Buy products with information labels.
- Do not rely on the word "non-toxic" on a product label -- it may still contain hazardous ingredients.
- Read all sections of the MSDS before you use the product and follow precautionary advice.
- Do not consider the MSDS the *whole* source of hazardous information about a product.

The information on a material's MSDS can help you determine whether waste containing any of the material could be hazardous.

There are two important things to look for when reviewing an MSDS:

- Check to see that the MSDS is written with your intended use of the product in mind. For example, if a product is to be sprayed, but the MSDS only describes the characteristics of the product in powder or liquid form, request additional information.
- Check the date that the MSDS was prepared. If it does not provide a preparation date, or if is several years old, request an updated copy.

Keep in mind...

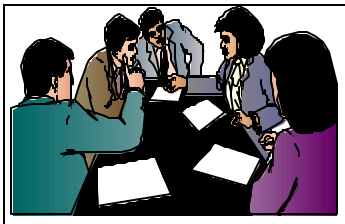
- ✓ Some wastes cannot be evaluated by using MSDSs.
- ✓ Some wastes are automatically listed as hazardous wastes (for example, still bottoms from drycleaning operations).

Not all MSDSs contain the same information, nor is there a standard format. **You must be a detective!** Look for hazard "tip-offs" based on the things you will learn in this part.

HOW DO I USE THE MSDS?

Although there is no standard MSDS format, all MSDSs must provide the same basic information. There are eight main sections:

- **Material manufacturer and identification** - Here you will find the name, address and emergency telephone number of the product's manufacturer. The chemical name, as well as the common name or trade name, of the product is given. If the product is a mixture of several chemicals, only its trade name will be listed.
- **Hazardous ingredients/identity information** - Lists the product ingredients that have been determined to be hazardous. The percentage, by weight, of each ingredient is listed.
- **Physical and chemical data** - Describes the physical characteristics of the product, such as its physical state (solid, liquid, or gas).
- **Fire and explosion hazard data** - Describes the circumstances under which the product may ignite or explode, the recommended extinguishing media, and what special protective equipment may be required.
- **Reactivity data** - Provides information on how the product will react under particular environmental conditions. Also tells which chemicals are incompatible with the product, and should not come into contact with it. Refer to this section when choosing safe storage conditions.
- **Health hazard** - Provides a combined estimate of the total known hazards of the product and describes routes of exposure and effects of short- and long-term exposure.
- **Precautions for safe handling and use** - Tells the safest known ways to store, use, and dispose of the material.
- **Control measures** - Describes personal protective equipment, work practices, and ventilation procedures to use when working with the product (*MSDS Fact Sheet,* 1994).



It is important that you and your employees take hazardous materials very seriously. You should always be looking for ways to eliminate hazardous materials from your processing altogether.

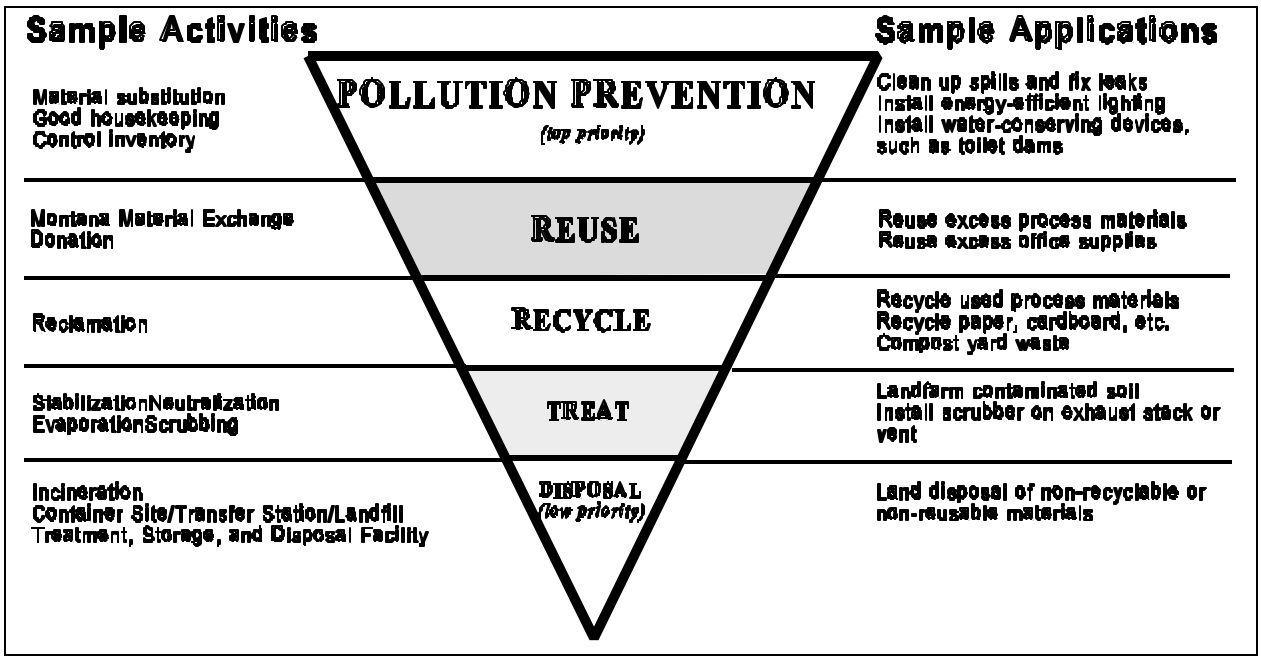
Setting Up A Pollution Prevention Assessment Program 4

INTRODUCTION

Pollution prevention (also known as source reduction or waste reduction) is the use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes at the source. It includes:

- Conservation of natural resources.
- Changing the final product to make it more durable, reusable, or recyclable.
- Changing the material used in production, such as substituting less hazardous solvents.
- Changing the way products are made in order to avoid the use of hazardous materials and generation of waste.
- Practicing good housekeeping methods such as cleaning up spills and fixing leaks right away.
- Using equipment more efficiently.

Pollution prevention involves the on-going examination of how a business operates with the goal of minimizing all types of waste. As illustrated in Figure 1, the top priority for minimizing waste is pollution prevention. Reuse, recycling, and treatment may also be included; however, they are a lower priority. The lowest priority for minimizing waste is disposal. Disposal methods



include landfilling and incineration.

If you would like more information on preventing pollution and pollution prevention assessments, contact the DENR at 773-5559.

Figure 1. Waste Minimization Possibilities

BENEFITS

By investing in pollution prevention, many businesses have:

- ✓ Reduced liability.
- ✓ Reduced regulatory burden and paperwork.
- ✓ Reduced operating costs.
- ✓ Improved employee safety by minimizing exposure to hazardous materials.
- ✓ Improved morale by involving employees in the planning and implementation of pollution prevention ideas.
- ✓ Enhanced public image.
- ✓ Reduced waste management and disposal costs.
- ✓ Increased productivity through more efficient use of raw materials.

GETTING STARTED

Pollution prevention begins by identifying ways to reduce or eliminate waste. This can be accomplished by establishing a **Pollution Prevention Assessment Program**. The Assessment program involves the owners, managers, and employees looking carefully at how the business operates, its buildings and grounds, and its waste streams in order to identify and remedy violations of environmental laws and rules. Use the program to also find ways to reduce waste and create a safer work environment. The basic principles of setting up a program are outlined in Figure 2 and discussed in more detail below.

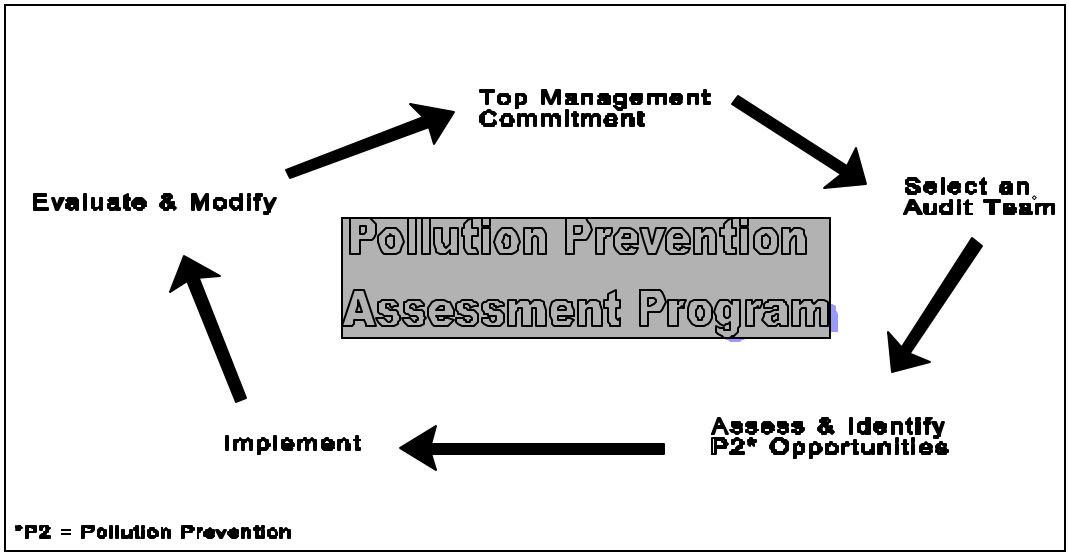


Figure 2. Cycle of Assessment Program Development

BEGIN AT THE TOP

The first step, which is critical to a successful Assessment program, is to get the business owner and managers to commit to pollution prevention. This commitment must then be embraced by the employees. This could be accomplished by establishing incentive programs to encourage employee participation. It may be helpful to establish employee training programs focused on pollution prevention, hazardous material handling, and emergency response.

Management Policy Statement

At [business name], we are committed to excellence and leadership in protecting the environment. In keeping with this policy, our objectives are to eliminate or reduce wherever possible:

- Our potential for contaminating air, water, and soil
- Our release of toxic pollutants into the environment
- Our use of hazardous materials
- Our generation of both solid and hazardous wastes

When the use of hazardous substances, generation of wastes, or release of wastes into the environment cannot be avoided, we are committed to minimizing any undesirable impacts on the air, water, and land. By successfully preventing pollution at its source, we can achieve cost savings, increase operational efficiency, improve the quality of our products and services, increase morale, and maintain a safe and healthy workplace for our employees.

Sincerely,

[Owner/Manager]

Figure 3. Sample Policy Statement

SELECT AN ASSESSMENT TEAM

An Assessment can be performed by a single person, a team of employees, or outside consultants. The team approach is recommended as it draws from a variety of perspectives and a broader knowledge base, and it is usually less expensive than hiring a consultant. Team members might include representatives from:

- Management
- Engineering
- Purchasing
- Budget/Finance
- Maintenance
- Production
- Waste management facility personnel

Pollution Prevention Team Members

1._____
2._____
3._____
4._____
5._____
6._____

The interests and expertise each member brings to the team will produce different areas and levels of concern. For example, management is not always aware of, or familiar with, the daily operations and concerns of the production or maintenance crews.

Once you have a team that is committed to preventing pollution, discuss what types of goals are appropriate for your business. For example, a company may want to set an ultimate goal of always being in compliance with applicable local, state, and federal laws and regulations. Another goal may be to reduce waste by 25% by a certain date. Be sure to update the program's goals as they are achieved.

Goals of Pollution Prevention Assessment Program

1.
2.
3.
4.
5.
6.

It is also important for the Assessment team to encourage employee participation and increase their awareness of pollution prevention efforts. Supervisors should discuss the status of the pollution prevention Assessment program at regular staff meetings and encourage group discussion of pollution prevention ideas. For a program to be successful, **every** employee has to accept the goals set forth by the Assessment team. As a way to help ease the natural resistance to change, you may find it helpful to encourage your employees and co-workers to comment on the program and suggest pollution prevention ideas of their own.

IDENTIFY & ASSESS POLLUTION PREVENTION OPPORTUNITIES

The next step in implementing a pollution prevention Assessment program is to identify the materials and the processes used, as well as the sources, types, and amounts of hazardous and non-hazardous wastes generated in your business. Use the checklists found in this guide. Use this information to pinpoint areas where your team needs to obtain further assistance, conduct more research, or focus its pollution prevention efforts. Refer to the last page of each part for the addresses and telephone numbers of assistance programs.

Next, identify potential source and waste reduction techniques for each product or process used and waste produced. All ideas generated during this step should be considered. Often the simplest or most far-fetched suggestions have the greatest positive impact.

After pollution prevention opportunities have been identified for your business, evaluate them and determine which ones should be considered for implementation. When evaluating your ideas, consider:

- Economic feasibility
  - Cost of alternative material
  - Cost of production modifications
  - Cost of disposal
- Liability and Worker's Compensation
- Regulatory requirements
- Technical feasibility of switching to the alternative
- Reuse and recycling opportunities
- Disposal options
  - Options may be limited depending upon the waste produced

Write down the pollution prevention ideas that you want to implement.

Table 1. Areas of pollution prevention opportunities for businesses in South Dakota

Business Type	Pollution Prevention Opportunities				
	Air	Water	Energy	Solid Waste	Hazardous Waste
Autobody Shop	_	_	_	_	_
Auto Repair	_	_	_	_	_
Bakery/Deli	_	_	_	_	_
Beauty	_	_	_	_	_
Construction	_	_	_	_	_
Dry Cleaning	_	_	_	_	_
Gas Station	_	_	_	_	_
Grocery	_	_	_	_	_
Health Care	_	_	_	_	_
Hospitality	_	_	_	_	_
Landscaping	_	_	_	_	_
Office	_	_	_	_	_
Photography	_	_	_	_	_
Printing	_	_	_	_	_
Retail	_	_	_	_	_
Restaurant	_	_	_	_	_
School	_	_	_	_	_
Wood Finishing	_	_	_	_	_

IMPLEMENT YOUR IDEAS

With the Assessment complete and alternatives identified, you can focus on implementing your ideas. Start by developing a plan of implementation. The plan should address what pollution prevention ideas will be used, their costs and payback periods, and when these changes will occur.

Implementation can be enhanced by quick victories with easy, low-cost, people-oriented solutions. For example, good housekeeping practices (described in *Part 2. Housekeeping Recommendations*) can often be the easiest and cheapest way to minimize waste and improve your image with customers and employees.

You may also find it easier to implement a few pollution prevention ideas at a time, especially if you are working on a tight budget. Keep track of how your pollution prevention Assessment program works, noting what was successful and what was not.

Be sure to notify all employees when you implement your ideas. It is very important to keep employees informed about when you will be implementing a new concept, how it will affect them, and how your program is progressing. As a way of introducing new techniques or methods to your employees, hold special pollution prevention training programs. You may want to include a pollution prevention orientation for new employees, regardless of their job function.

EVALUATE & MODIFY

After your pollution prevention assessment program has been in place for a period of time, evaluate its successes and failures. Compare costs before and after implementation. Consider your program a success if you, for example, saved money, reduced the amount of waste generated, or reduced on-the-job injuries. If some implemented ideas did not work, get your team together to come up with some alternative solutions.

As indicated in Figure 2, pollution prevention is a continuous process. You can perform an assessment, implement an idea, or modify your program any time you want. **As you complete each step, check it off the following list**.

Pollution Prevention Assessment Program Checklist

TOP MANAGEMENT COMMITMENT

- ❑ Create a written policy statement supporting pollution prevention activities
  - ❑ Distribute statement to all employees
- ❑ Reward pollution prevention successes
- ❑ Increase employee awareness
- ❑ Educate employees

SELECT AN ASSESSMENT TEAM

- ❑ Develop a pollution prevention team
- ❑ Commit to program implementation
- ❑ Set goals
- ❑ Encourage employee participation

IDENTIFY & ASSESS POLLUTION PREVENTION OPPORTUNITIES

- ❑ Gather background information
  - ❑ Raw materials
  - ❑ Production mechanisms
  - ❑ Process interrelationships
  - ❑ Waste generated
    - ❑ non-hazardous waste ❑ hazardous waste
- ❑ Characterize general processes in facility
- ❑ Fill out Assessment checklists
- ❑ Identify pollution prevention ideas
- ❑ Evaluate pollution prevention ideas
  - ❑ Economic feasibility ❑ Technical feasibility
  - ❑ Liability ❑ Regulatory requirements
  - ❑ Reuse/recycling opportunities ❑ Disposal options

IMPLEMENT POLLUTION PREVENTION IDEAS

- ❑ Develop an implementation plan
  - ❑ List pollution prevention ideas to be implemented
  - ❑ Schedule
    - ❑ for implementation ❑ for evaluation
- ❑ Increase employee awareness
- ❑ Educate/train employees
- ❑ Provide orientation for new employees
- ❑ Keep records of successful and unsuccessful ideas

EVALUATE & MODIFY POLLUTION PREVENTION ASSESSMENT PROGRAM

- ❑ Evaluate program
- ❑ Modify program as needed
- ❑ Rotate pollution prevention team members
- ❑ Increase employee awareness
- ❑ Conduct refresher training for employees
- ❑ Publicize success stories

TERMS ASSOCIATED WITH POLLUTION PREVENTION

Compost - The controlled microbial decomposition of organic matter, such as yard waste and food scraps, in the presence of oxygen into a humus- or soil-like material.

Container Site - A location with refuse containers for the collection of solid waste generated by more than one household or firm, is generally open to the public, and collects more than 10 cubic yards of material.

Disposal (in terms of hazardous waste) - The discharge, injection, deposit, dumping, spilling, leaking, or placing of any hazardous waste into or onto the land or water so that the hazardous waste or any constituent of it may enter the environment or be emitted into the air or discharged into any water system.

Disposal (in terms of solid waste) - The discharge, injection, deposit, dumping, spilling, leaking, or placing of any solid waste into or onto the land so that the solid waste or any constituent of it may enter the environment or be emitted into the air or discharged into any water system.

Evaporation - To change into vapor.

Incineration - The controlled burning of municipal solid waste to reduce volume and, in some cases, to recover energy.

Landfarm - The use of a combination of oxygen, moisture content, temperature, and naturally-occurring soil microorganisms to break down contaminants in soil.

Landfill - The disposal of solid waste at engineered facilities in a series of compacted layers on land and the daily covering of the waste with soil. Fill areas are managed in such a way as to prevent nuisances or public health hazards.

Neutralization - To render a chemical neither acidic nor basic.

Pollution Prevention - The design, manufacture, purchase, or use of materials to reduce the amount or toxicity of waste.

Reclamation - Means to restore or enhance the land-use capability of disturbed land.

Recycle - The process by which materials are collected, reprocessed or remanufactured, and reused.

Reuse - The use of a material more than once in its same form, either for the same purpose or for a different purpose.

Solid Waste - All putrescible and non-putrescible wastes, including garbage, rubbish, sludge from sewage treatment plants, dead animals, appliances, construction and demolition debris, and wood waste.

Source Reduction - See “Pollution Prevention.”

Stabilization - To make or become resistant to changes of condition or position.

Storage - The actual or intended containment of wastes, either on a temporary basis or for a period of years.

Treatment - A method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste to neutralize the waste or render it non-hazardous, safer for transport, amenable for recovery, amenable for storage, or reduced in volume.

TSD Facility - A treatment, storage, and disposal facility (see individual definitions above).

Transfer Station - A solid waste management facility that can have a combination of structures, machinery, or devices, where solid waste is taken from collection vehicles (public, commercial, or private) and placed in other transportation units for movement to another solid waste management facility.

Waste Reduction (Minimization) - See “Pollution Prevention.”